

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-38 (cancelled)

39. (currently amended) The method of impacting a target with a projectile, said projectile comprising an absorption zone, a hull, a mass of core particles within said hull and an actuator, said actuator being releasably fixed to an impact end of said hull and said absorption zone being upstream of said core particles, comprising the steps of:

~~a. igniting an explosive charge to project said projectile,~~

~~b. absorbing said explosive charge impact within said absorption zone,~~

~~c. maintaining said core particles within said hull until a first impact,~~

a. impacting said target with said hull containing said actuator and said mass of core particles,

b. d. releasing said actuator and said mass of core particles from said hull during said a first impact, and -maintaining said mass of core particles as a lethal unitary mass, on a substantially straight trajectory behind said actuator, for a first predetermined distance after said first impact,

~~e. maintaining said mass of core particles as a lethal unitary mass, behind said actuator, for a predetermined distance after said first impact,~~

~~f. maintaining said actuator on a substantially straight trajectory for said predetermined distance,~~

g. c. radially dispersing said mass of lethal unitary mass over a second predetermined distance to produce a mass of non-lethal individual particles.

40. (currently amended) The method of claim 39, wherein the hull peels back away from said mass of core particles at a rate substantially equal to that of the velocity of the projectile thereby

maintaining substantially all of said lethal unitary mass in a confined mass behind said actuator and providing a controlled, first predetermined distance of lethality beyond said ~~initial~~-first impact.

41. (original) The method of claim 39, wherein a secondary impact of said lethal unitary mass with a target is preceded by a shock wave.

42. (currently amended) The method of claim 39, further comprising the step of maintaining said lethal unitary mass, for said first predetermined distance, beyond said first impact with a lethal impact effect-substantially ~~equivalent~~-equal to that of a unitary projectile.

43. (currently amended) The method of claim 39, wherein ~~said actuator is configured such that~~ said first predetermined distance is up to about six feet beyond said first impact.

44. (currently amended) The method of claim 39, wherein ~~said actuator is configured such that~~ said first predetermined distance is up to about three feet beyond said first impact.

45. (currently amended) A method of controlling the release of energy from a fired projectile, comprising the steps of:

- a- releasing from said projectile, during an initial impact, an actuator leading a unified, cohesive structure of individual particles,
- b- maintaining said individual particles in said unified, cohesive structure behind said actuator for a first predetermined distance,
- c- expanding said unified, cohesive structure into a increasingly less unified structure over a second predetermined distance,
- d- radially dispersing said structure, after said second predetermined distance, into discrete non-lethal particles.

46- (currently amended) The method of claim 45 further comprising the step of said ~~mass of~~ unified, cohesive structure functioning as a slug in step (b); acting like a slug of substantially increased diameter in step (c); and dispersing into non-lethal discrete particles in step (d).

47- (currently amended) The method of claim 45, further comprising the step of step (c) occurring at a distance of between about three feet and within about six ~~ten~~-feet from said initial impact.

48. (original) The method of claim 45 further comprising the steps of:

- a- confining said particles in a hull,
- b- peeling back and away said hull from said particles, during said first impact, at a predetermined peel back rate,

wherein said predetermined peel back rate produces a controlled rate of release of said particles immediately subsequent to said initial impact.

49. (original) The method of claim 48 wherein said predetermined peel back rate is substantially equal to the velocity of said projectile.

50. (original) The method of claim 48, wherein said hull is configured to peel back and release said unified, cohesive structure of individual particles on the order of about one ten thousandth of a second.

51. (currently amended) The method of impacting a target with a projectile having a plurality of small particles encased in a hull, comprising the steps of:

- ~~a) separating said hull from said plurality of small particles during an initial impact,~~
- a) maintaining said plurality of small particles within said hull until during initial impact,

b) maintaining said plurality of small particles in the form of a cohesive lethal mass of particles for a distance of between at least about two feet to about ten feet beyond the point of said initial impact,

c) dispersing said cohesive lethal mass of particles after said distance into individual non-lethal, radially dispersing particles.

52. (original) The method of claim 51, further comprising the step of initially maintaining said plurality of small particles in the form of a cohesive lethal mass to provide said plurality of small particles with a lethal impact effect substantially equivalent to that of a unitary projectile.

53. (original) The method of claim 51, further comprising the step of said particles dispersing and acting as discrete individual non-lethal particles after traveling no greater than about ten feet beyond said point of initial impact.

54. (currently amended) The method of claim 51, further comprising the step of said particles dispersing and acting as discrete individual non-lethal particles after traveling ~~no greater than~~ about six feet beyond said point of initial impact.

55. (withdrawn)

56. (currently amended) The method of claim 51, further comprising the step of maintaining said small particles in said cohesive mass behind an actuator, said actuator having a periphery, an exterior side and an interior side and being releasably fixed to an impact end of said hull ~~is open end to close said hull open end~~, said initial impact peeling back said impact end of said hull and releasing said actuator ~~from said hull is open end~~.

57. (currently amended) The method of claim 56, wherein said actuator periphery is ~~provided with~~ has a tapered conical sides, said tapered conical sides having its greatest radial dimension at said exterior side.

58. (currently amended) The method of claim 56, wherein actuator has ~~at least one~~ a stem member, said ~~at least one~~ stem member ~~-being~~ centrally positioned and extending from said interior side of said actuator- into said cohesive mass.

59. (currently amended) The method of claim 57, further comprising the step of affixing said actuator to said hull ~~open~~ -impact end with a circular ring on said interior side of said ~~truncated~~ tapered conical ~~section~~ side of said actuator.

60. (currently amended) The method of impacting a target located beyond a first impact zone, with a projectile, said projectile comprising ~~a gas~~, was an absorption zone, a hull, a mass of core particles within said hull and a radial dispersion control member, said radial dispersion control member being releasably fixed to said hull at an impact end and said absorption zone being upstream of said core particles, comprising the steps of:

~~a- firing said projectile at a target positioned beyond a first impact zone,~~

~~ba- impacting said a~~ first impact zone with said projectile,

~~eb- peeling said hull back upon itself during said impact, and~~ releasing said radial dispersion control member and said mass of core particles, said radial dispersion control member and said mass of core particles generating a pressure wave in advance of said mass of core particles, said radial dispersion control member maintaining said core particles in a unified mass for a first predetermined controlled distance after penetration of said first impact zone,

~~d- releasing said radial dispersion control member and said mass of core particles~~

~~e- generating a pressure wave in advance of said mass of core particles,~~

fc dispersing said projectile core particles in a progressively expanding pattern such that said core particles no longer act as a unitary projectile and travel as substantially discrete individual particles,

~~—said radial dispersion control member maintaining said core particles in a unified mass, and having an impact effect substantially equivalent to that of a unitary projectile, for a first predetermined controlled distance, thereafter dispersing said projectile core particles in a progressively expanding pattern such that the particles no longer act as a unitary projectile and travel as substantially discrete individual particles,~~

wherein impact with a target within said first predetermined distance is equivalent to a lethal unitary projectile and impact beyond said first predetermined distance is a non lethal plurality of individual impacts.

61. (currently amended) The method of claim 60, wherein said core particles substantially start passing said radial dispersion control member after traveling at least about six feet from said first impact zone. ~~of said target.~~

62. (currently amended) The method of claim 60, wherein said radial dispersion control member has a stem member, said stem member being surrounded and controlled by said mass of projectile core particles, said mass of projectile core particles being maintained in a substantially unified mass.

63. (new) The method of claim 39 wherein said first predetermined distance is determined by said actuator configuration.

Claims 51-58 and 61 are rejected under 35 U.S.C. 112, first paragraph.

The Examiner states that there is no basis in the disclosure for the phrase “at least about two feet beyond the point of said initial impact”. On page 19, line 4, wherein it states “For the first two to three feet, the core particles have a single body effect.” It is submitted that at “least two feet” would find basis in the foregoing statement within the specification. Additionally, claim 51 has been amended to include the limit of “about 10 feet”.

The Examiner has stated that there is no teaching in the specification for the cohesive lethal mass of particles to be maintained up to ten feet. This teaching is found on Page 24, line 16 wherein it states that “at a distance of about seven (7) to about ten (10) feet, the intermediate zone of the pellets expanded ... of less lethal individual acting pellets”. Additionally, original claim 24 states that the individual particles act discretely “after traveling no greater than about ten feet from the point of impact...” On page 7, lines 22 – 12, it is stated that the example used herein is ten feet. On page 10, lines 14-15 it is stated that “a zone of expansion from first impact to very low potential for lethal impact that is initially seven (7) to ten (10) feet...” It is therefore respectfully submitted that there are teachings within the specification to substantiate the claims of “about ten feet”.

Claim 58 has been amended to reflect only a single stem member.

Claim 61 has been amended to state “at least about six feet from said first impact zone” which provides a starting point, with six feet providing the point at which the particles start passing the control member.

Claims 39 – 44, 47 and 51-62 have been rejected under 35 U.S.C. 112 as being indefinite.

The Examiner has stated that Claims 39, 51 and 60 are vague and indefinite in that they do not recite the three states of operation. The claims have been amended to reflect these three stages.

In claims 43 and 44 "configured such that" has been deleted.

In Claim 47 it states "expanding said unified, cohesive structure into a increasingly less unified structure over a second predetermined distance," . Please see above remarks regarding teaching of the ten (10) foot span to low lethality.

✓ As stated heretofore, claim 51 has been amended.

Claim 55 has been deleted.

Claim 56 has been amended to correct the antecedent issues. Claim 56 also has no statement regarding the distance and it is believed that this should be referencing claim 54, which has been amended to read "about six feet" rather than "no greater than about".

✓ Claim 57 has been amended to read "tapered conical sides".

Claim 58 has been deleted.

Claim 59 has been amended to read "tapered conical side" which finds antecedent basis in Claim 57.

Claim 60 has been amended to read "an adsorption zone" rather than "a gas, wad zone".  
The antecedent issues in line 4 of Claim 60 have been corrected.

Claim 61 has been amended as per above.

Claims 45, 46 and 48 are rejected under 35 U.S.C. 102(e) as being anticipated by Davies. The Examiner has stated that the Davies patent discloses in Figures 8A - 8C a projectile having a plurality of particles and an actuator. The Davies patent is a standard shotgun shotcup that has been slit to form petals to facilitate disintegration upon impact. There is no actuator. According



to the description in Col 13, the shotshell payload 90 has an end cap 94 (84 in the drawings) that maintains a quantity of shot 92 enclosed within the body 82. What this produces is no more than a container of shot that disintegrates upon impact. The end cap merely maintains the shot within the body until it reaches an impact point. The Davies patent does not teach any other use of the end cap 94 other than maintaining the quantity of shoe 92 within the projectile until impact.

Conversely, in the present invention, the projectile the actuator serves a dual purpose of maintaining the particles within the hull prior to initial impact and enabling the particles to continue to travel as a controlled unitary lethal mass for a predetermined distance beyond an initial impact. This can be accomplished by the hull peeling back at a rate inverse to the rate of forward travel upon contact with the initial barrier. This rate of peel back minimizes any disruption of the core particles and the actuator and core particles continue traveling as a unitary mass. The rewritten claims clearly point out that the particles travel as a unitary mass for a predetermined distance beyond an initial impact.

It is submitted that the amended claims clearly set for the novelty of the disclose invention and overcome the rejection based upon Davies.

Claims 45, 46, and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Canon. The Canon projectile disintegrates immediately upon impact within the target body and does not teach passing through a barrier, or initial target, and having a lethality range for a predetermined distance beyond the initial impact. As stated at Col 4, lines 6 - 16, the liquid and particles contained within the projectile will be distributed within the target body upon impact. The tip, however, will not necessarily be stopped by the target, especially when lead is used. (Col. 3, lines 55 - Col 4, lines 1- 5) However, the tip does not maintain particles as a unitary mass.

In the instant application, the projectile can pass through an initial barrier and still remain lethal for a predetermined distance. In a viscous environment the instant projectile will rapidly lose its momentum. The transition is more rapid than in air, but the transition follows the same pattern. The Canon patent has no teaching of a structure that can impact an initial target or barrier and maintain lethality for a predetermined distance beyond this initial impact.

Claims 51 and 52 have been rejected under 35 U.S.C. 102(b) as being anticipated by Petersen. The '054 patent to Petersen discloses that, "[t]he friable capsule 40 is manufactured out of a composition which becomes rapidly pliable, or melts, when it is exposed to the heat generated by the impact of the apparatus 10 with a preselected target, not shown. Col 5 lines 28 – 31.

The patent goes on to equate the filler material and the friable capsule, as follows:

"The filler material is also operable to control the size of the dispersion pattern and the depth of penetration of the round shot and the multiple penetrators, when the friable capsule 40 releases these projectiles upon impact with the target. It should be understood that the filler material is manufactured out of a composition which becomes rapidly pliable or melts when it is exposed to the heat which is generated when the apparatus 10 strikes the target. This filler material thus operates in a fashion similar to the material which makes up the friable capsule 40, that is, the filler material, which has become pliable, adheres to the target in the area of impact thus preserving the heat of impact localized. This heat energy, of course, causes the target to become weakened and thus permits the various projectiles 60 released from the friable capsule to achieve improved projectile penetration of the preselected target." col 8 lines 37 to 58

As explained at Col 6 lines 63- to 7 5, the "shot will, upon passing through and traveling a distance three feet past the preselected target, disperse into a pattern which has a diameter of approximately 24 inches." Since the filler rapidly becomes pliable and or melts, it cannot serve to keep the shot in a unified pattern. Thus, Peteresen's shot 80, disperses immediately upon impact and can reach a pattern of 24 inches within three feet. By way of contrast, the structure as defined in the claim, remains as a unified structure after impact, and does not beginning to disperse for a predetermined distance, preferably of about three feet.

The claims of the present application define a three stage process of firing, impact, remaining unified due to the peel back and/or the presence of an actuator. The controlled peel back is physically and functionally different from Petersen's friable capsule 40. Since the filler is also friable, it immediately releases the shot 80. By way of contrast, the actuator of the claims does not dissipate upon impact, but rather, functions for a predetermined distance, typically at least three feet. By way of emphasis, it should be understood that during the first three feet of travel after impact, the shot 80 of Petersen is dispersing, while the shot of the claims remains as a unitary body.

Claims 47, 49 and 50 – 56 are rejected under 35 U.S.C. 102(a) as being unpatentable over Davies. The Examiner states that it would have been obvious to vary the characteristics of the elements of the Davies projectile to achieve a desired dispersion of particles. It is submitted that the Davies patent does not have an actuator but rather has a pair of end caps that are secured together with bolts through the holes of each cap (Col. 5, lines 59 – 62). It is submitted that this makes it impossible for the Davies shell to have an actuator, or any other leading device if the

front and rear caps are secured together. In view of the absence of an actuator, Davies would not be able to achieve the control of the disclosed invention.

Claims 39-44, 60 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davies in view of Peddie. It is submitted that the instant invention is not claiming a wad absorption zone in of itself, but as an integral part of a bullet. There novelty in the disclosed bullet is the ability to remain lethal for a period of time after initial impact and then to become non lethal after a short, predetermined distance.

Claims 47, 49 and 50-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Canon. As the Canon patent has no teaching regarding the projectile impacting an initial target or barrier and then maintaining lethality for a predetermined distance beyond this initial impact, it is submitted that changing the attributes of the Canon device would still not achieve the results of the disclosed bullet. The only way for the Canon bullet to perform as the disclosed invention is for it to be totally redesigned based upon the instant disclosure.

Claims 39-44, 60 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Canon in view of either Turco et al or Knoster, Jr. As stated heretofore, the Canon device does not produce the same results as taught in the instant disclosure. Therefore the addition of a gas seal and wad adsorption zone, both being well known, to the Canon bullet would still not provide the results achieved with the bullet of the instant disclosure. The applicant is not claiming a gas seal or a wad adsorption zone on their own, but rather a unique bullet that happens to include these features. It is submitted that they could be removed from the claims without affecting the novelty of the device, however in light of complete disclosure and teaching, they have been included.

Claims 53-55 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Petersen. As stated heretofore, the Petersen device does not produce the same results as the disclosed bullet and therefore and changes to vary the characteristics would not produce the variations achievable by the instant invention. Petersen lacks the features that are necessary to produce applicant's results.

The Examiner has stated that the Davies projectile is substantially identical to applicant's projectile. It is submitted that the Davies devices does not have an actuator that continues forward after initial impact. Therefore, the only thing identical about the two is that both are projectiles carrying pellets in a casing. Further, in Col. 2, line 61 – Col 3, line 4, Davies states that the goal is to have a projectile that is less lethal over a distance. He does not provide a structure that retains the unity of particles after impact criteria other than not passing through a multitude of walls.

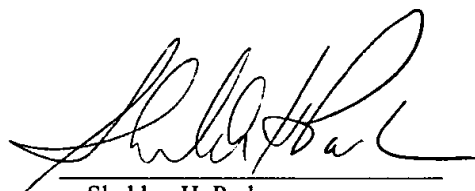
The Examiner further states that the Canon projectile is substantially identical to applicants' projectile. In addition to the distinguishing features noted in remarks above, the Canon projectile does not have an actuator, nor does the hull of the Canon projectile peel back.

In view of the foregoing it is respectfully submitted that the application is condition for allowance and an early notice of allowance is respectfully request.

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